

CLAIMS

What is claimed is:

1. A process for backwashing a particulate bed filter comprising the acts of:
 - (a) performing a terminal backwash step at a subfluidization washwater flow rate(s) following the primary cleaning stage(s) of a backwash procedure;
 - (b) maintaining the subfluidization washwater flow rate(s) for a period of time sufficient to displace the majority of the water volume within the filter at the beginning of the said process;
 - (c) allowing the backwash step to remove significant portions of the contaminant(s) displaced by the primary cleaning stage(s) of the backwashing procedure that might otherwise return through the filter following restart.
2. The process of claim 1 wherein said a subfluidization washwater flow rate is less than minimum fluidization velocity of at least portion of the media in the filter.
3. The process of claim 1 wherein said significant portions include at least 50% of the total concentration of a contaminant(s).

4. The process of claim 1 wherein said primary cleaning stage(s) of the backwash procedure are drawn from among (1) fluidization, (2) surface washes, (3) air scouring, and (4) combined air and water wash of the media(s).
5. The process of claim 1 wherein said the contaminant(s) include microorganisms less than about 50 microns in size.
6. The process of claim 1 wherein said the contaminant(s) include nonliving particles less than about 100 microns in size.
7. The process of claim 1 wherein said the contaminant(s) include organic compounds less than 500,000 Daltons in size.
8. The process of claim 1 wherein said the contaminant(s) include viruses.
9. The process of claim 1 wherein said the contaminant(s) include protozoans.
10. The process of claim 1 wherein said the contaminant(s) include bacteria.
11. The process of claim 1 wherein said the filter material(s) include any or all of the following: sand, anthracite coal, granular activated carbon, garnet, plastic filter material(s), and ceramic filter material(s).

12. The process of claim 1 wherein the amount of water required for the backwashing procedure is reduced.

13. The process of claim 1 wherein the amount of water diverted away from the product water stream following restart of a backwashed filter is reduced.

14. The process of claim 1 wherein the amount of chemical(s) introduced into the backwash water or the filter immediately following backwashing is reduced, and the chemical(s) are chosen from among: aluminum sulfate, aluminum chloride, ferric sulfate, ferric chloride, chitosan, cationic polymer(s), anionic polymer(s), nonionic polymer(s), and chemicals containing a trivalent metal ion(s) (e.g., Fe(III) or Al(III)).